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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/535,099	05/16/2005	Naohiro Matsunaga	019519-469	3621

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EXAMINER	
HON, SOW FUN	

ART UNIT	PAPER NUMBER
1794	

NOTIFICATION DATE	DELIVERY MODE
12/10/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ADIPFDD@bipc.com

Office Action Summary	Application No.	Applicant(s)	
	10/535,099	MATSUNAGA, NAOHIRO	
	Examiner	Art Unit	
	SOPHIE HON	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 October 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4-12 and 14-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4-12 and 14-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

Withdrawn Rejections

1. The 35 U.S.C. 112, 2nd paragraph rejection of claims 1-10, 21-22 is withdrawn due to Applicant's amendment accompanied by Applicant's clarification that the term "coarse particles" are the particles which have a particle size that distinguishably deviate from the average particle size of the substantially monodisperse particles. The new limitation of "substantially monodisperse" is supported by Applicant's definition of a monodisperse or single particle size distribution which is $d_{Max} - d_{AC}$ is nearly equal to 0 μm (page 27 of specification).

2. The 35 U.S.C. 102(a) and 103(a) rejections of claims 1-24 over Ito as the primary reference are withdrawn due to Applicant's amendment.

3. The 35 U.S.C. 103(a) rejections of claims 1-24 over Matsu49 in view of Matsu33 as the primary combination of references are withdrawn due to Applicant's amendment accompanied by Applicant's clarification that the term "coarse particles" are the particles which have a particle size that distinguishably deviate from the average particle size of the substantially monodisperse particles as discussed above.

New Rejections

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 102

4. Claims 1-2, 4, 6-8, 10-12, 14, 16-18, 20-24 are rejected under 35 U.S.C. 102(a) as being anticipated by Ito (WO 03/034104).

Regarding claim 1, Ito teaches an anti-reflection film comprising a transparent support (substrate, page 1, lines 11-15, (20), page 9, lines 10-16, Fig. 1) at least one hard coat layer (diffusion layer (30), page 9, lines 10-16, Fig. 1, hard coat, diffusion layer, Example 5, page 54, lines 5, 27-28) and an outermost low refractive index layer ((50), page 9, lines 10-16, Fig. 1). Ito teaches (a) that the surface of the anti-reflection film has a surface roughness of 0.05 μm (page 9, lines 1-2), which means that the central line average roughness Ra is within the claimed range of not greater than 0.15 μm, (b) the hard coat layer comprises at least one kind of particle (Example 5, lines 1-20) and (c) the at least one kind of particle includes a particle having a particle diameter of 3.0 μm (size, page 56, lines 17-20) which is not smaller than 80% of the thickness of the hard coat layer (3.0 μm, page 56, line 29) wherein the particle having a diameter of 3.0 μm is monodisperse (page 13, lines 4-9). Ito teaches that the hard coat layer further comprises at least one particle providing an internal scattering property that has a particle diameter of 1.5 μm (page 56, lines 13-15) wherein the particle having a diameter of 1.5 μm is also monodisperse (page 13, lines 4-9). This means that there are no coarse particles in the hard coat layer having a particle size that deviates from the two monodisperse average particle diameters that is outside the range of less than 4 times the 3.0 μm thickness of the hard coat layer. Hence the cut point value (CP

value) of coarse particles in the hard coat layer is within the range of less than 4 times the thickness of the hard coat layer. Ito teaches that the hard coat layer includes a light-diffusing layer (hard coat, page 56, line 5, diffusion film, page 56, line 28), and the light-diffusing layer has a scattered light intensity at 30° of 0.1 to 0.2% based on the light intensity at an exit angle of 0° in a scattered light profile measured by a goniophotometer (ratio of an intensity of scattered light at an angle of 30° to an intensity of transmitted light an angle of 0°, page 94, lines 4-10).

Regarding claim 2, Ito teaches that the hard coat layer further comprises at least one particle providing an internal scattering property that has a particle diameter of 1.5 μm (size, page 56, lines 13-15) which is within the range of less than 80% of the thickness of the hard coat layer (3.0 μm, page 56, line 29) wherein the particle having a diameter of 1.5 μm is also monodisperse (page 13, lines 4-9). This means that there is no coarse particle in the hard coat layer having a particle size that deviates from the two monodisperse average particle diameters that is outside the range of less than 4 times the 3.0 μm thickness of the hard coat layer. Hence the cut point value (CP value) of coarse particles in the hard coat layer is within the range of less than 4 times the thickness of the hard coat layer.

Regarding claim 4, Ito teaches that the surface of the anti-reflection film has a surface roughness of 0.05 μm (page 9, lines 1-2), which means that the central line average roughness Ra is within the claimed range of not greater than 0.10 μm.

Regarding claim 6, Ito teaches a polarizing plate comprising a polarizer and two protective films of the polarizer (polarizing membrane, page 50, lines 10-12), wherein

one of the two protective films of the polarizer is the anti-reflection film (page 50, lines 10-15).

Regarding claim 7, Ito teaches that the protective film other than the anti-reflection film of the two protective films of a polarizer is an optically anisotropic layer (polarizing plate comprises the anti-reflection film, a polarizer, and an optically anisotropic layer, piled up in order, page 51, lines 32-35) which is part of an optical compensation layer (page 59, lines 19-20), and the optically anisotropic layer comprises a compound having a discotic structure (page 42, lines 18-23), the disc plane of the discotic structure unit is inclined with respect to the surface protective film plane (transparent support, page 42, lines 18-23) and the angle between the disc plane of the discotic structure unit and the surface protective film plane is changed in the direction of depth of the optically anisotropic layer (inclined angle increases or decreases with increase in distance in the direction of depth from the bottom of the optically anisotropic layer, page 42, lines 24-27). The birefringence of such an optically anisotropic layer is expected to be negative in the absence of a showing otherwise.

Regarding claim 8, Ito teaches a liquid crystal display (page 2, lines 21-24) comprising the anti-reflection film as an outermost layer of the display device (top surface of the display, page 2, lines 25-30).

Regarding claim 10, Ito teaches a liquid crystal display device of a TN-, VA-, IPS- or OCB-mode transmission type (page 52, lines 28-30), comprising the anti-reflection film (page 52, lines 20-25).

Regarding claim 11, Ito teaches an anti-reflection film comprising a transparent support (substrate, page 1, lines 11-15, (20), page 9, lines 10-16, Fig. 1) at least one hard coat layer (diffusion layer (30), page 9, lines 10-16, Fig. 1, hard coat, diffusion layer, Example 5, page 54, lines 5, 27-28) and an outermost low refractive index layer ((50), page 9, lines 10-16, Fig. 1). Ito teaches (a) that the surface of the anti-reflection film has a surface roughness of 0.05 μm (page 9, lines 1-2), which means that the central line average roughness Ra is within the claimed range of not greater than 0.15 μm, (b) the hard coat layer comprises at least one kind of particle (Example 5, lines 1-20) and (c) the at least one kind of particle includes a particle having a particle diameter of 3.0 μm (page 56, lines 17-20) which is not smaller than 80% of the thickness of the hard coat layer (3.0 μm, page 56, line 29) and is monodisperse (page 13, lines 4-9), which means that the variance in the particle diameter is near 0, and satisfies the relationship represented by formula (1) of Applicant. Ito teaches that the hard coat layer includes a light-diffusing layer (hard coat, page 56, line 5, diffusion film, page 56, line 28), and the light-diffusing layer has a scattered light intensity at 30° of 0.1 to 0.2% based on the light intensity at an exit angle of 0° in a scattered light profile measured by a goniophotometer (ratio of an intensity of scattered light at an angle of 30° to an intensity of transmitted light an angle of 0°, page 94, lines 4-10).

Regarding claim 12, Ito teaches that the hard coat layer further comprises at least one particle providing an internal scattering property that has a particle diameter of 1.5 μm (page 56, lines 13-15) which is within the range of less than 80% of the thickness of the hard coat layer (3.0 μm, page 56, line 29) and is monodisperse (page

13, lines 4-9), which means that the variance in the particle diameter is near 0, and satisfies the relationship represented by formula (1) of Applicant.

Regarding claim 14, Ito teaches that the surface of the anti-reflection film has a surface roughness of 0.05 μm (page 9, lines 1-2), which means that the central line average roughness Ra is within the claimed range of not greater than 0.10 μm.

Regarding claim 16, Ito teaches a polarizing plate comprising a polarizer and two protective films of the polarizer (polarizing membrane, page 50, lines 10-12), wherein one of the two protective films of the polarizer is the anti-reflection film (page 50, lines 10-15).

Regarding claim 17, Ito teaches that the protective film other than the anti-reflection film of the two protective films of a polarizer is an optically anisotropic layer (polarizing plate comprises the anti-reflection film, a polarizer, and an optically anisotropic layer, piled up in order, page 51, lines 32-35) which is part of an optical compensation layer (page 59, lines 19-20), and the optically anisotropic layer comprises a compound having a discotic structure (page 42, lines 18-23), the disc plane of the discotic structure unit is inclined with respect to the surface protective film plane (transparent support, page 42, lines 18-23) and the angle between the disc plane of the discotic structure unit and the surface protective film plane is changed in the direction of depth of the optically anisotropic layer (inclined angle increases or decreases with increase in distance in the direction of depth from the bottom of the optically anisotropic layer, page 42, lines 24-27). The birefringence of such an optically anisotropic layer is expected to be negative in the absence of a showing otherwise.

Regarding claim 18, Ito teaches a liquid crystal display (page 2, lines 21-24) comprising the anti-reflection film as an outermost layer of the display device (top surface of the display, page 2, lines 25-30).

Regarding claim 20, Ito teaches a liquid crystal display device of a TN-, VA-, IPS- or OCB-mode transmission (page 52, lines 28-30), comprising the anti-reflection film (page 52, lines 20-25).

Regarding claim 21, Ito teaches a liquid crystal display comprising the polarizing plate as the outermost layer of the display device (page 52, lines 20-25).

Regarding claim 22, Ito teaches a liquid crystal display device of a TN-, VA-, IPS- or OCB-mode transmission (page 52, lines 28-30), comprising the polarizing plate (page 52, lines 20-25).

Regarding claim 23, Ito teaches a liquid crystal display comprising the polarizing plate as the outermost layer of the display device (page 52, lines 20-25).

Regarding claim 24, Ito teaches a liquid crystal display device of a TN-, VA-, IPS- or OCB-mode transmission (page 52, lines 28-30), comprising the polarizing plate (page 52, lines 20-25).

Claim Rejections - 35 USC § 103

5. Claims 5, 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito as applied to claims 1-2, 4, 6-8, 10-12, 14, 16-18, 20-24 above, and further in view of Tanaka (JPO Website Machine English Translation of JP 10-268111).

Ito teaches the anti-reflection film described above. Ito teaches that the anti-reflection film is used in an image display (page 2, lines 21-24). Ito is silent regarding the value of transmitted image sharpness.

However, one of ordinary skill in the art would readily know and understand that the ideal value of transmitted image sharpness is 100% regardless of the optical comb width of the measuring instrumentation used. Tanaka teaches that an anti-reflection film provides a value of transmitted image sharpness that is within the range of 10 to 70% as measured at a comb width of 0.05 mm, and is within the range of 15 to 80% as measured at a wider comb width of 0.125 mm (transmission image color definition in an image clarity measuring instrument, Detailed Description, [0004]), which means that the range is even higher as measured at Applicant's even wider comb width of 0.5 mm, and overlaps the claimed range of 40% to less than 97%. Thus Tanaka establishes the value of transmitted image sharpness as a result-effective variable for the purpose of providing the desired image clarity.

Therefore, it would have been obvious to one of ordinary skill in the at the time the invention was made, to have provided the anti-reflection film of Ito with a value of transmitted image sharpness that is within the range of not smaller than 40% to less

than 97% as measured at a comb width of 0.5 mm, in order to provide the desired image clarity, as taught by Tanaka.

6. Claims 9, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito as applied to claims 1-2, 4, 6-8, 10-12, 14, 16-18, 20-24 above, and further in view of Nelson (US 6,535,195).

Ito teaches a liquid crystal display device comprising the anti-reflection film as an outermost layer of the display device, as described above. Ito is silent regarding the type of liquid crystal display device and so fails to teach that the device is a liquid crystal large-sized television having a size not smaller than 21 inch or a liquid crystal wide television having an aspect ratio of 9:16 or greater.

However, Nelson teaches that a liquid crystal large-sized and hence wide television having a size of at least 42 inch (column 1, lines 33-43), which is within the claimed range of not smaller than 21 inch, and an aspect ratio of 16:9 (column 1, lines 39-40), which is within the claimed range of 9:16 or greater, is highly desirable to the consumer in the present marketplace.

Therefore, since Ito fails to teach the type of liquid crystal display device, it would have been necessary and hence obvious to have looked to the prior art for suitable types. As such, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have provided the liquid crystal display device of Ito, as a liquid crystal large-sized wide television having a size within the range of not smaller than 21 inch and an aspect ratio within the range of 9:16 or greater, in order to meet the present market demand, as taught by Nelson.

Response to Arguments

7. Applicant argues that the MX300 beads in the examples of Ito (WO '104) are not substantially monodisperse, but rather have a comparatively broad particle size distribution as evidenced by US 6,074,741 and US 6,261,665 which disclose that the MX300 beads have a particle size variance of ± 0.5 μm.

Applicant is respectfully apprised that while '741 and '665 disclose the use of MX300 beads that have a particle size variance of ± 0.5 μm, Ito specifies that the MX300 beads that are used in the example have a particle size of 3.0 μm (page 56, lines 17-20) and are monodisperse (page 13, lines 4-9). This is in accordance with Ito's teaching that the particle size be the same or uniform to provide the same amount of scattering for ease of haze control (page 13, lines 4-8).

8. Applicant argues that Ito does not disclose that the particle in the hard coat layer satisfies a relationship represented by Applicant's formula (1): $0\ \mu m \leq d_{Max} - d_{AC} \leq 7\ \mu m$.

Applicant is respectfully apprised that Ito specifies that the MX300 beads that are used in the example have a particle size of 3.0 μm (page 56, lines 17-20) and are monodisperse (page 13, lines 4-9), which is in accordance with Ito's teaching that the particle size be the same or uniform to provide the same amount of scattering for haze control (page 13, lines 4-8), as discussed above.

Furthermore, even taking into consideration the instance where the particles are not limited to monodisperse particles, the MX300 beads that have a particle size

variance of ± 0.5 μm, evidenced by the '741 and '665 evidentiary documents provided by Applicant, would still not be outside Applicant's limit of ± 7 μm.

9. Applicant made a decision to withhold the English translation of the foreign priority document in the remarks section dated 10/02/08 and thus fails to perfect Applicant's foreign filing priority date which antedates Ito. Therefore, Ito is still a valid prior art document.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication should be directed to Sow-Fun Hon whose telephone number is (571)272-1492. The examiner can normally be reached Monday to Friday from 10:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Keith Hendricks, can be reached on (571)272-1401. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Sophie Hon/

Examiner, Art Unit 1794

/KEITH D. HENDRICKS/

Supervisory Patent Examiner, Art Unit 1794